

1-Line Bidirectional ESD Protection Diode

General description

Low capacitance bidirectional ElectroStatic Discharge (ESD) protection diode in a DFN1006(SOD882) leadless ultra small Surface-Mounted Device (SMD) plastic package designed to protect one signal line from the damage caused by ESD and other transients.

Features and benefits

- . Bidirectional ESD protection of one line
- . Femtofarad capacitance: $C_j = 15\text{pF}$ (Typ)
- . Low clamping voltage $V_C = 11\text{V}@10\text{A}$
- . Low leakage current: nA Level
- . ESD protection up to 30 kV
- . IEC 61000-4-2; level 4 (ESD)
- . IEC 61000-4-5 (surge); $I_{PPM} = 10\text{A}$

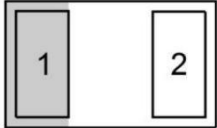
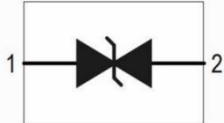
Application information

- . Portable electronics
- . Computers and peripherals
- . Audio and video equipment
- . Cellular handsets and accessories
- . Communication systems
- . Power supplies

Ordering information

| Device | Package | Marking | Packaging |
|-----------|------------|---------|-------------------|
| ESD8D3.3C | DFN1006-2L | B | 10000/Tape & Reel |

Schematic & Pin configuration

| Simplified outline | Graphic symbol |
|---|--|
|  |  |

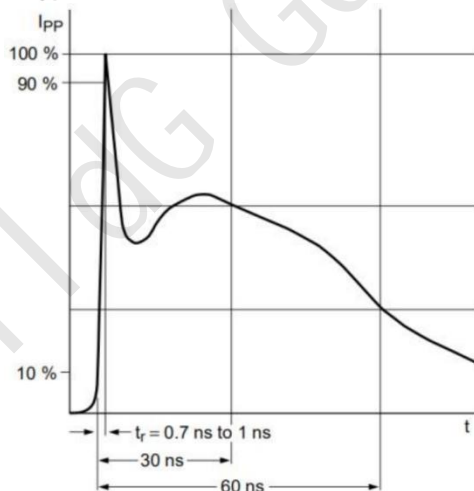
Maximum Ratings ($T_{OP} = 25 \text{ } ^\circ\text{C}$, unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|-----------|-------------|------------------|
| Peak Pulse Power ($T_p = 8/20 \text{ } \mu\text{s}$) | P_{PPM} | 110 | W |
| Rated Peak Pulse Current ($T_p = 8/20 \text{ } \mu\text{s}$) | I_{PPM} | 10 | A |
| ESD voltage IEC 61000-4-2 (air discharge) | V_{ESD} | 30 | kV |
| ESD voltage IEC 61000-4-2 (contact discharge) | V_{ESD} | 30 | kV |
| Maximum lead temperature for soldering during 10s | T_L | 260 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -55 to +150 | $^\circ\text{C}$ |
| Operating Temperature Range | T_{OP} | -40 to +125 | $^\circ\text{C}$ |
| Maximum junction temperature | T_j | 150 | $^\circ\text{C}$ |

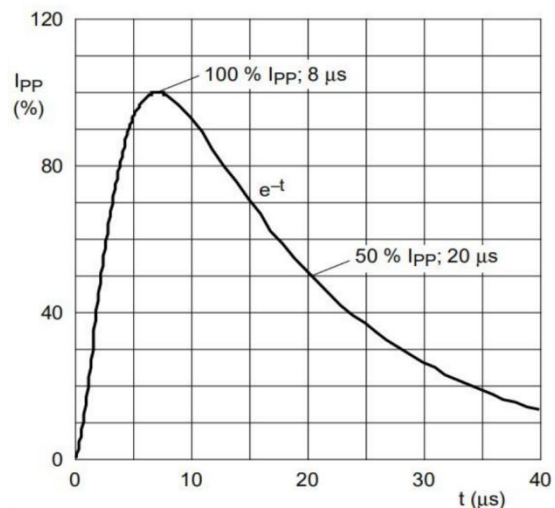
Electrical Characteristics ($T_{OP} = 25 \text{ } ^\circ\text{C}$, unless otherwise specified)

| Parameter | Symbol | Min | Typ | Max | Unit | Condition |
|----------------------------|-----------|-----|-----|------|------|--|
| Reverse Working Voltage | V_{RWM} | -- | -- | 3.3 | V | |
| Breakdown Voltage | V_{BR} | 4.5 | -- | 6.5 | V | $I_r=1\text{mA}$ |
| Leakage Current I_{Leak} | I_r | -- | -- | 100 | nA | $V_{RWM}=3.3\text{V}$ |
| Clamping Voltage | V_C | -- | -- | 11.0 | V | $I_{pp}=10\text{A}, T_p=8/20\mu\text{s}$ |
| Junction Capacitance | C_j | -- | 15 | 20 | pF | $V_R=0\text{V}, f=1\text{MHz}$ |

Typical Electrical and Thermal Characteristics (Curves)



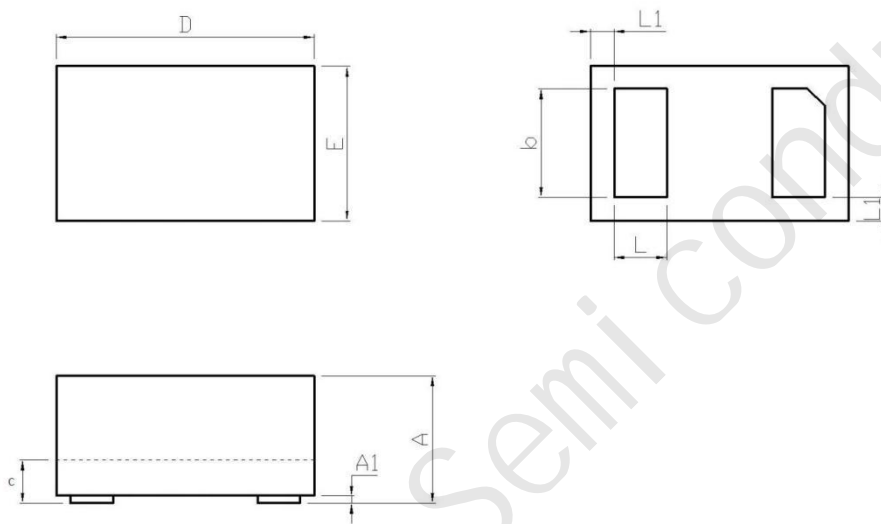
IEC61000-4-2 Waveform



IEC 61000-4-5 Waveform(8/20 μs pulse)

Package Outline Dimensions

DFN1006-2L



| DFN1006-2L (mm) | | | |
|-----------------|-------|------|-------|
| Dim | Min | Typ. | Max |
| A | 0.46 | 0.48 | 0.50 |
| A1 | 0 | 0.02 | 0.05 |
| b | 0.45 | 0.5 | 0.55 |
| c | 0.1 | 0.12 | 0.14 |
| D | 0.95 | 1.00 | 1.05 |
| E | 0.55 | 0.60 | 0.65 |
| L | 0.20 | 0.25 | 0.30 |
| L1 | 0.035 | 0.05 | 0.065 |
| h | 0.07 | 0.12 | 0.17 |

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